

HOW TO...

Discover how much standby is costing you

Is standby mode robbing you of precious pennies? Simon Edwards shows you how to work out your power costs with the help of an Excel spreadsheet



Calculating power costs and potential savings can be tricky, but armed with the spreadsheet on this month's cover disc and a £28 power plug monitor (available from retailers such as Maplin) to find the wattage of the device in use and in standby mode, you can work out how much you are spending on specific devices and the price difference between using standby and turning things off completely.

This spreadsheet calculates how much time each device spends in standby. It then works out the cost of using the device and leaving it in standby mode. As PCs have different levels of standby, you will have to decide in advance the method you're going to use. If you use the Standby option that appears when you choose Turn Off Computer in Windows XP, the device is as good as off and will use only a couple of watts and cost a couple of quid at most over a year. Using Windows power management to power down the hard disks is far less effective.

An Excel version of this spreadsheet is available on this month's cover DVD. For a Google Docs version, as created here, visit <http://tinyurl.com/4fz4z5>. If you want to change values or otherwise edit the document, you will need to make a copy of it using File, Copy spreadsheet.

1 Enter the kWh cost (0.1183, in our example) in cell B3 and make a list of devices for which you have wattage values. Create four main headings: On, Standby, Off and Annual cost. Span all but the Annual cost headings across three columns. Span Annual cost across two. Do this by selecting each cell and the

next two to its right. Click the Merge across button in Google Docs. If you use Excel, click the Merge & Center button.

2 Add the sub-headings for each of these main headings. Beneath the On and Standby headings, use Weekday, Weekend day and Wattage. The Off heading should have Weekday and Weekend day sub-headings. Annual cost will need On, Standby and Total sub-headings. Add the wattage values for each device in the appropriate cells.

3 Add the number of hours that you use each device into the empty cells underneath the On heading. In the first column, type in the number of hours that each device is used each day during the week. In the next column, estimate how many hours you use the device on a weekend day. Ignore the Standby columns for now, and enter how many hours each device is turned off at the wall into the Off columns. If you usually use standby, you'll enter 0 into most of these cells.

4 The spreadsheet will need to calculate how long each device spends in standby mode each day. This is the difference between its time in use and the time it spends turned off. The formula for weekday standby time is $=24-(B5+H5)$, which adds together the weekday On time and the weekday Off time and subtracts this figure from 24 hours. Similarly, the weekend standby time formula is $=24-(C5+I5)$. Type the formulae into cells E5 and F5 respectively and drag each cell down to

the bottom of the list to apply each formula to every row. Select all the cells beneath the Annual cost heading and format as currency. In Google Docs, this option is available by using the Format button on the toolbar. Recent versions of Excel have an Accounting Number Format button on the toolbar.

5 To calculate the cost of running a device type the following into cell J5, under Annual cost, On: $=((((B5*5)+(C5*2))*52)*(D5/1000))*\$B\$1$. This multiplies the weekday hours by five (the number of weekdays in a week) and the weekend days by two, giving the number of hours a week that the device is used. The result is multiplied by 52 to find how many hours a year it is used. This is further multiplied by D5/1000, which is the kWh value, and then by the cost of a kWh. This gives the annual cost of running the device, according to your usage patterns.

The formula for the Standby cost, $=((((E5*5)+(F5*2))*52)*(G5/1000))*\$B\$1$, is similar, although it uses standby times and wattages for its calculation. Drag both cells down to the bottom of the list.

6 The final column holds the annual cost totals. It contains a simple formula that uses the SUM function. Type $=SUM(J5:K5)$ into the top cell and drag it to the bottom of the list. This shows how much each device costs per year in total. The standby costs can equal or even exceed the costs of using some devices. Consider the Annual cost, Standby column as being your potential savings. In our example, we could save around £35 per year by turning things off. **CE**

1 Initial setup of the spreadsheet. The 'On' heading is merged across columns C, D, and E. The 'Standby' heading is merged across columns F, G, and H. The 'Off' heading is merged across columns I and J. The 'Annual cost' heading is merged across columns K and L. The kWh rate (0.1183) is entered in cell B3.

2 Sub-headings added for 'On' (Weekday, Weekend day, Wattage), 'Standby' (Weekday, Weekend day, Wattage), and 'Off' (Weekday, Weekend day). The kWh rate (0.1183) is in cell B3.

3 Usage data entered for various devices. The 'On' columns (Weekday, Weekend day) contain hours of use. The 'Standby' columns (Weekday, Weekend day) are empty. The 'Off' columns (Weekday, Weekend day) contain hours of power-off time.

4 Standby time calculated for each device. The formula $=24-(B5+H5)$ is used for weekday standby time, and $=24-(C5+I5)$ is used for weekend standby time.

5 Annual cost calculated for 'On' and 'Standby' for each device. The formula $=((((B5*5)+(C5*2))*52)*(D5/1000))*\$B\$1$ is used for 'On' cost, and a similar formula is used for 'Standby' cost.

6 Total annual cost calculated for each device using the SUM function: $=SUM(J5:K5)$.